FSA Integration Partner

United States Department of Education

Federal Student Aid

Data Strategy Enterprise-Wide Standard Student Identification Method 123.1.23 Implementation Strategy

Task Order #123

Version 2.0

October 2, 2003

Executive Summary

The Standard Student Identification Method (SSIM) team seeks to establish a simple framework by which FSA can consistently identify students/borrowers across all phases of the Student Aid Lifecycle. The SSIM team was created from business operators and representatives from each of FSA's major systems who reached consensus on the recommendations contained in this document. The team used the high level design as the starting point for the construction of the Implementation Strategy. This document summarizes the SSIM solution consensus reached over the course of the implementation working sessions with FSA business representatives. The Implementation Strategy Deliverable will define the SSIM implementation options analysis, recommended implementation strategy and sequencing for implementing the solution in alignment with FSA's overall data strategy and business objectives.

After analyzing the potential implementation options, the SSIM team proposes an initial pilot of SSIM logic followed by a two-phased process. The initial pilot of SSIM could be run for the CPS Renewal Application process or potentially all Stage One systems (CPS, COD, NSLDS). The analysis of pilot data is critical to ensure future data integrity/consistency.

Stage One of SSIM recommends individual application's implementation of the matching algorithm option for processing input files from one system to another. Assuming a pilot is completed in CPS for the 2004-2005 cycle year, Stage One should focus on the full SSIM implementation in CPS, COD, and any modification for the NSLDS system to begin in the upcoming annual requirements cycle (2005-2006 award year). Also recommend as part of Stage One is the exchanging of the SSA match flag from existing SSA matches in CPS and PIN to signal potential identity problems or issues between COD and NSLDS. The final recommendation for SSIM Stage One is the use of a centralized routing solution for the handling of identifier errors and the propagation of appropriate identifier changes.

Future deliverables will reflect the integration of SSIM Stage Two with FSA's Overall Data Strategy. The first of these deliverables will be Deliverable 123.1.4 Data Framework Specification.

The high level design for the SSIM solution proposed invoking the matching algorithm logic as specific points in the FSA lifecycle. The diagram below reflects those points:

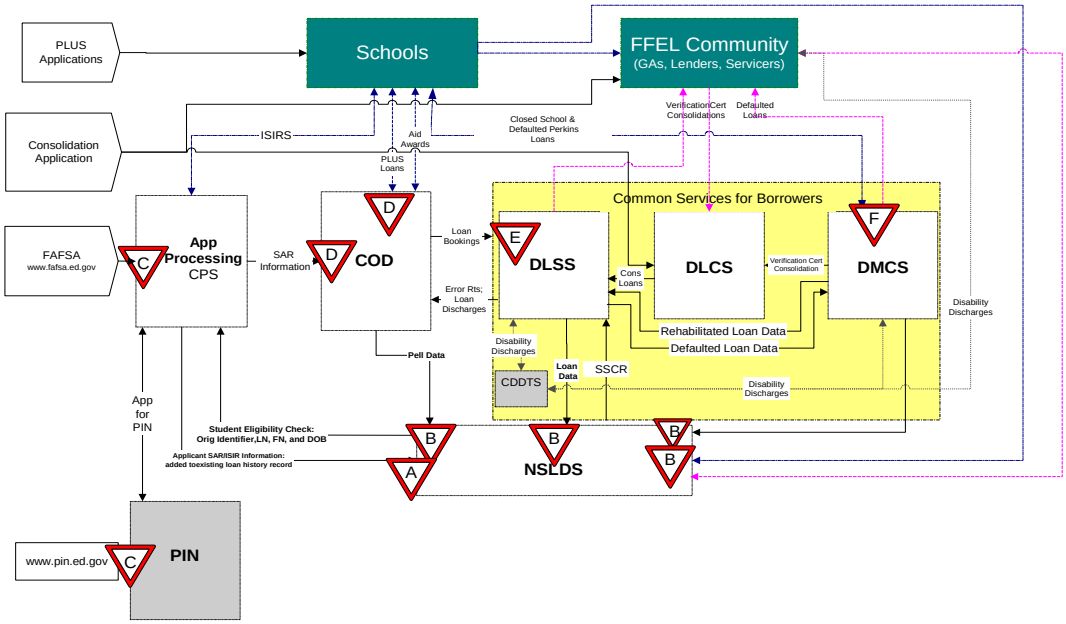

Figure ES.1

Existing Use of Algorithm

A. NSLDS runs the algorithm to check newly loaded FAFSA identity information against identification information from CPS.

B. NSLDS runs the matching algorithm for all new loan information entering NSLDS.

Suggested New Use of Algorithm

C. CPS and PIN run the matching algorithm against their own databases when receiving new or renewal applications to ensure against duplicates.

D. COD runs the matching algorithm to determine if a borrower is new or has a previous award and then applies the record correctly to the COD database (COD would continue to use the existing process and edits when matching with CPS).

E. DLSS (CSB) runs the matching algorithm to match records received from COD, DLCS, and DMCS with those existing in DLSS (not targeted for Stage One).

F. DMCS (CSB) runs the matching algorithm to match debts received from DLSS, Schools, or FFEL community with those existing in DMCS (not targeted for Stage One).

Steps to appropriately implement SSIM include:

- Pilot implementation and analysis.
- Detailed requirements gathering and implementation of the SSIM matching algorithm at the individual system level.

- Detailed requirements and implementation of SSIM centralized routing for propagation of Change Processing and Error Handling.
- Define and adopt consistent processes for changes and corrections to identifier fields.
- Define and adopt change controls for matching algorithm logic and other aspects of the SSIM solution.
- Revise the SSIM solution based on error rates, additional analytics, and FSA long-term vision.

In reviewing the current environment, the SSIM team has identified relatively low-impact process changes that may provide the opportunity to pre-empt many identification errors. These include:

- Pre-Screening – NSLDS should supply additional information as a response to CPS' inquiry to identify potential identity conflicts when eligibility is determined.
- Pacific Islanders – SSIM recommends encouraging Pacific Islanders to use the same identifier across multiple cycle years.
- Single Name Values – SSIM recommends that further analysis be done in NSLDS and across all systems to determine whether singly-named individuals should have "NFN"/"NLN" or null values.

In this document, the SSIM team enumerates potential impacts SSIM may have on FSA system interfaces, FSA system architecture, and impacts on external partners such as students, schools, and the FFEL Community. Potential policy and statute impacts and changes are also included.

This document also lists FSA and Integration Partner dependencies that were accounted for in the recommendations listed. These dependencies include:

- Common Services for Borrowers (CSB)
- PIN Re-engineering
- Central Processing System (CPS) Multi-Year Database
- Common Origination and Disbursement (COD)

Appendices to this document also detail the results of working session held by the SSIM team and a review of the SSIM High-Level Requirements.

Amendment History

DATE	SECTION/ PAGE	DESCRIPTION	REQUESTED BY	MADE BY
09/19/03	All	Created initial document.	N/A	E. Dublin
09/30/03	E.S, 1.1.1	Added more details about the SSIM team.	D. Adams	D. Loewenstein
09/30/03	2.3	Added more details of the benefits and drawbacks of the "Centralized Logic with a Centralized Data Store" option.	D. Adams	D. Loewenstein
10/1/03	3.5	Emphasized benefits of Stage One	D. Loewenstein	D. Loewenstein

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1 Introduction

1.1 Objective and Background

1.1.1 Objective

The Standard Student Identification Method (SSIM) team seeks to establish a simple framework by which FSA can consistently identify students/borrowers across all phases of the Student Aid Lifecycle. The SSIM team was created from business operators and representatives from each of FSA's major systems.

The SSIM team delivered the high level design of the SSIM solution at the end of May 2003. Since that time the SSIM team has analyzed potential implementation options and come to consensus on a phased implementation recommendation.

1.1.2 SSIM High Level Design Summary

The SSIM High Level Design leverages effective, proven identifier solutions already being used in some parts of the FSA lifecycle. Roll-out of these tools and processes consistently shall tighten controls and improve data integrity/consistency.

1. Primary Identifier Verification (SSN) with the matching algorithm (First Name, Last Name, DOB)
2. Additional SSA verification
3. Consistent Correction Processing and Error Handling

Please reference the SSIM High Level Design for more information. This deliverable outlines the recommended implementation approaches for the three aspects of the SSIM solution.

1.1.3 Implementation Strategy Phase

The SSIM team used the high level design as the starting point for the construction of the Implementation Strategy. First, the SSIM team met with the overall data strategy teams, related Integration Partner initiatives, and FSA Data Strategy leadership to discuss the technical feasibility of options recommended in the SSIM Solution Design working sessions. From the feedback, the SSIM team formed its initial recommendations.

Next, the team met with the SSIM FSA Core Team and additional FSA system experts to review the implementation recommendations. FSA system representatives examined the options and defined the various system impacts, requirements, and potential sequencing in two collaborative working sessions.

This document summarizes the SSIM solution consensus reached over the course of the implementation working sessions with FSA business representatives. ***Please reference Appendix A and B: SSIM Working Session 7/31/03 and 8/6/03 for more information.*** The Implementation Strategy Deliverable will define the SSIM implementation options analysis,

recommended implementation strategy and sequencing for implementing the solution in alignment with FSA's overall data strategy and business objectives.

2 Implementation Options Analysis

In the course of the high level design and implementation analysis, the team identified three possible options for implementation of the SSIM matching algorithm. The benefits and drawbacks of each option are summarized below. The team gained consensus on an Implementation Strategy that includes components of de-centralized and centralized logic. ***Please reference Appendix A: SSIM Working Session 7/31/03 for more information.***

2.1 De-centralized Logic

In a de-centralized implementation, the logic for the SSIM algorithm is implemented and invoked within each system when receiving new records and updates to existing records. Similarly, logic for the change process and error handling is implemented and run within each system.

2.1.1 Benefits

This option can be implemented in a phased approach based on the development cycles of the systems. Each individual system can incorporate this logic within its own release schedules. Furthermore, current system-to-system communications can be conducted as usual, with the modified edits of the matching algorithm.

2.1.2 Drawbacks

Because the logic is not maintained centrally, changes to the matching algorithm and alias table would require updates in multiple locations. For change process and error handling, systems would be required to hold the logic and rules to propagate SSIM data to multiple systems and build additional interfaces. This additional responsibility would present a significant modification to the current system processing

2.2 Centralized Logic

Centralized logic would imbed the SSIM algorithm logic into the central EAI layer or a similar technology. When receiving new records and updates to existing records, each system would be required to send the relevant SSIM information from the incoming file and its own database to the central location to run the algorithm. The submitting system would also be responsible for processing the results of the algorithm. Centralized logic would also handle the notification and routing of changes process and errors.

2.2.1 Benefits

The algorithm and alias table would be managed and maintained centrally, preventing redundant processing and allowing for easier maintenance and control of consistency. Correction Processing and Error handling would be managed and maintained centrally allowing for easier maintenance and control of the propagation to other systems.

2.2.2 Drawbacks

Systems would be required to send data to a single location to be processed centrally and receive/process the outcome. This presents a significant additional step in the standard processing of records. Moreover, every system must be enabled to transmit large volumes of records to the central architecture. The volume of records involved presents performance concerns. The central logic would be required to support the volume and speed required by the systems for processing.

2.3 Centralized Logic with a Centralized Data Store

With a centralized data store, the need to pass information internally between FSA systems is reduced or eliminated because the data is stored in a common source. Centralized logic would imbed the SSIM algorithm logic into the central EAI layer or a similar technology. Centralized logic would also handle the notification and routing of changes process and errors.

2.3.1 Benefits

The algorithm and alias table would be managed and maintained centrally, preventing redundant processing and allowing for easier maintenance and control of consistency. Correction Processing and Error handling would be managed and maintained centrally allowing for easier maintenance and control of the propagation to other systems. A common data source would reduce the need for internal transfers of data and the possibility of data errors.

A common data source does not currently exist in the FSA environment. Consolidation of data sources leading to more common data throughout FSA is part of the overall Data Strategy vision. FSA's overall Data Strategy vision will be defined through future Data Strategy deliverables.

2.3.2 Drawbacks

Systems would be required to send data to a single location to be processed centrally and receive/process the outcome. This presents a significant additional step in the standard processing of records. Moreover, every system must be enabled to transmit large volumes of records to the central architecture. The volume of records involved presents performance concerns. The central logic would be required to support the volume and speed required by the systems for processing.

3 Recommended Implementation Strategy

3.1 Summary

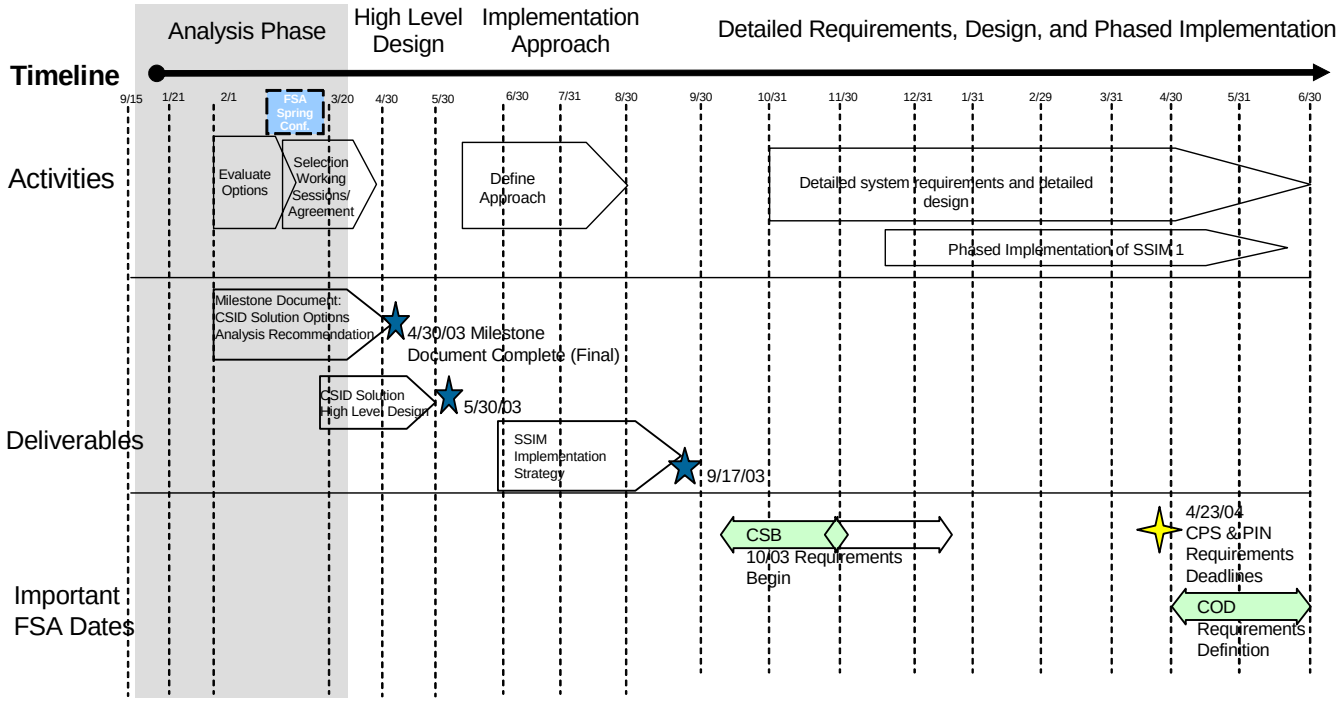
After analysis, the SSIM team combined the feasible implementation options where most effective.

The team recommends a two-phased approach for implementation following the CPS pilot:

- **Stage One** Entails predominantly system-based modifications that can be implemented in the next cycle year, specifically adding the matching algorithm to a chosen system or systems, and potentially centralize the change processing and error handling
- **Stage Two** Broadens Stage One implementation with more centralized components added, in alignment with the FSA Data Strategy. Elements of Stage Two will be defined with the approval of the overall FSA Target State.

3.2 Implementation Timeline

Stage One of the SSIM Implementation is targeted to begin with each FSA system's next annual requirements cycle. The second part of the SSIM solution, Stage Two, will be aligned with the long-term FSA vision scheduled for the next 3-5 years. The sequencing for both phases is outlined in section 3.7 of this deliverable.



The following important dates are being tracked as deadlines for the requirements of SSIM Stage One within each of the systems listed. What systems are to be impacted is still

undetermined. If SSIM Stage One is to occur in the next available development year, the requirements deadlines of the systems will be taken into consideration:

- Central Processing System (CPS) has a requirements deadline of April 23, 2004.
- Common Origination and Disbursement will define new requirements from April to June 2004.
- The National Student Loan Data System (NSLDS) would like to collect new requirements by spring 2004; NSLDS does not have a specific requirements schedule so the changes could be implemented anytime.
- The ED PIN site also has an April 23, 2004 requirements deadline.
- The Common Services for Borrowers (CSB) initiative begins requirements definition in October 2003 (CSB is not targeted for Stage One. However, requirements for Stage Two should begin with the requirements definition period of CSB).

3.3 Steps Required to Implement SSIM

The SSIM Implementation Strategy is outlined in this deliverable as a biphasic process following the CPS pilot. The overall steps involve:

- Pilot implementation and analysis.
- Detailed requirements gathering and implementation of the SSIM matching algorithm at the individual system level.
- Detailed requirements and implementation of SSIM centralized routing for propagation of Change Processing and Error Handling.
- Define and adopt consistent processes for changes and corrections to identifier fields.
- Define and adopt change controls for matching algorithm logic and other aspects of the SSIM solution.
- Revise the SSIM solution based on error rates, additional analytics, and FSA long-term vision.

3.4 SSIM Pilot

The SSIM working sessions consistently recommended testing or prototyping the SSIM matching algorithm logic with real FSA data. The SSIM Stage One could first be implemented in pilot with CPS. Alternatively, the SSIM team could formulate scenarios or a test plan for all eligible SSIM Stage One systems (CPS, COD, and NSLDS). The matching algorithm logic could then be used with realistic test data prior to the use of the algorithm in production. Another possibility is to run the algorithm against the RFMS Conversion data to compare results. The results of a pilot and/or algorithm run against RFMS Conversion data should be thoroughly analyzed to help determine potential algorithm changes, benefits of implementation, and impacts on data sharing.

Should a SSIM pilot be run in CPS for renewal applications, the analysis of pilot results should be used to help determine the future direction of SSIM. Key data points that should be captured include:

- Number and percentage of records that create new records on the database using the previously existing logic.
- Number and percentage of records that have an exact match with an existing record on the database using the previously existing logic.
- Number and percentage of records that pass logic to become associated with an existing record without an exact match using the previously existing logic.
- Number and percentage of records that create error conditions (by error condition type) using the previously existing logic.
- Number and percentage of records that create new records on the database using the SSIM logic.
- Number and percentage of records that have a match with an existing record on the database using the SSIM logic.
- Number and percentage of records that create error conditions (by error condition type) using the SSIM logic.
- Time and effort required to resolve error conditions.
- Number of change records (SSN, First Name, and Last Name) that would need to be propagated to all FSA systems through the change process.

3.5 SSIM Stage One

Stage One of SSIM recommends individual application's implementation of the matching algorithm option for processing input files from one system to another. The CPS, COD, and NSLDS systems are all candidates for inclusion in SSIM Stage One; however, it is possible to implement the matching algorithm logic in a single system as an SSIM pilot, if widespread adoption is deemed unrealistic in the next cycle year.

Analysis of the CPS SSIM pilot results should be considered when moving forward with Stage One and Stage Two of SSIM. This will allow for a smooth and cohesive transition for all FSA systems to adopt SSIM processes. Results of the pilot should be used to help determine potential algorithm changes and the number of change records that will need to be propagated to all FSA systems. Based on the differences found between existing logic and SSIM logic, estimated expectations for identifier error volume and error handling can be established.

While the SSIM pilot against the CPS renewal application database will help in determining if the algorithm is appropriate in that phase of the student aid lifecycle, in Stage One, FSA can begin to look at how student identifier changes affect different processes across the enterprise. Stage One, in essence, will be a pilot for error handling and change processing. For example, a borrower with an identifier change between undergraduate and graduate school will not be in the CPS renewal database. The interaction between CPS, COD, and NSLDS and the handling of this change at various points in the student aid lifecycle can only be seen through the successful implementation of Stage One.

Depending on the scope of Stage One and how many systems are included a component could include the correction processes and error handling. Implementing this process through centralized routing (EAI) will allow communication/propagation to all impacted systems.

Implementation of Stage One is targeted to begin in the upcoming annual requirements cycle (2005-2006 award year), with the potential CPS pilot being implemented in the 2004-2005 cycle year.

Stage One can best serve FSA by investigating trends across multiple systems and recommending changes to the SSIM processes in anticipation of Stage Two. Specifically Stage One should involve:

- Tracking trends in matching algorithm exceptions;
- Suggesting modifications to enable better processing;
- Evaluating the level of effort for error handling and change processing.

3.5.1 Eligible Systems for SSIM Stage One

For SSIM Stage One, the team recommends the implementation of matching algorithm logic at entry points for CPS and COD, while maintaining the current use of matching algorithm logic for NSLDS. FSA needs to confirm which systems to target for Stage One.

The timeline for the Common Services for Borrowers (CSB) initiative is not yet defined. The SSIM team recommends aligning their implementation of the matching algorithm with Stage Two. The team does not recommend implementing SSIM on DLSS, DMCS, or DLCS. However this is a decision FSA leadership should confirm before any SSIM implementation begins.

In addition, due to the eminent re-engineering of the PIN site, the SSIM team does not recommend PIN as a candidate for SSIM Stage One.

The SSIM team must determine if such a limited release warrants the use of the centralized correction processing and error handling.

3.5.2 Matching Algorithm Logic

The high level design for the SSIM solution proposed invoking the matching algorithm logic as specific points in the FSA lifecycle. The diagram below reflects those points:

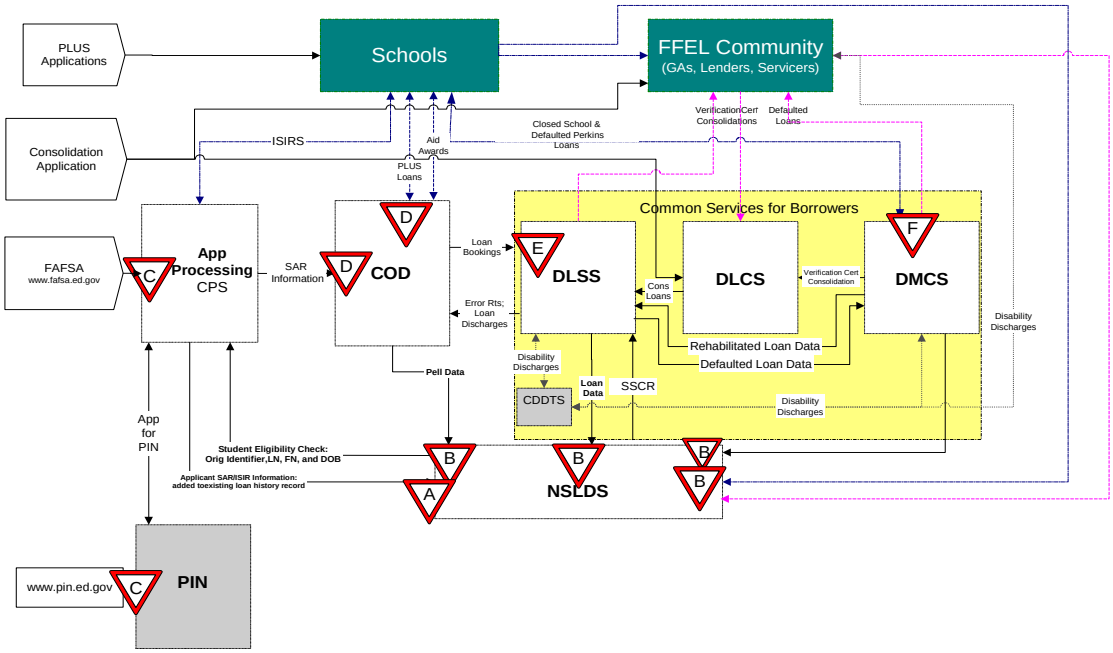


Figure 3.1

Existing Use of Algorithm

A. NSLDS runs the algorithm to check newly loaded FAFSA identity information against identification information from CPS.

B. NSLDS runs the matching algorithm for all new loan information entering NSLDS.

Suggested New Use of Algorithm

C. CPS and PIN run the matching algorithm against their own databases when receiving new or renewal applications to ensure against duplicates.

D. COD runs the matching algorithm to determine if a borrower is new or has a previous award and then applies the record correctly to the COD database (COD would continue to use the existing process and edits when matching with CPS).

E. DLSS (CSB) runs the matching algorithm to match records received from COD, DLCS, and DMCS with those existing in DLSS (not targeted for Stage One).

F. DMCS (CSB) runs the matching algorithm to match debts received from DLSS, Schools, or FFEL community with those existing in DMCS (not targeted for Stage One).

This process would include loading consistent matching algorithm logic, as well as a constant alias table into all appropriate FSA systems. The matching algorithm could then be used at the appropriate entry points for records entering each for the FSA systems.

Through the testing and initial SSIM stages, exceptions and recurring instances should be tracked to provide solid justification to any changes in the SSIM logic or data requirements.

Such documented, quantifiable instances could warrant a modification for SSIM logic in a specific system or to improve the overall algorithm.

System impacts and implementation requirements are further described in ***Section 4.0 Scope and Impacts***.

3.5.3 Social Security Matches

Due to the outstanding questions and initiatives-in-progress requiring a common application for PLUS loans, it is not recommended that the additional SSA matches be implemented as part of SSIM Stage One. The existing matches with SSA, through CPS and PIN will provide adequate validation of applicant identities. In the meantime, PLUS loans do still receive a credit check validation.

It is recommended that NSLDS and COD, however, leverage the information received from the existing SSA matches to signal potential identity problems or issues. Specifically, SSIM Stage One proposes the exchange of the SSA match flag to indicate that a record, or data set, has successfully been verified with SSA.

3.5.4 Error Handling and Change Processing

3.5.4.1 Process Guidelines: Error Handling

The SSIM team proposes the following centralized routing solution for the propagation of identifier changes across the FSA lifecycle. This solution will allow each system to notify a single source when there are errors or changes to identifying data. Whether this process is Stage One or Two is dependent on the system sequencing chosen by FSA.

Sending systems will be primarily responsible for resolving SSIM errors. Although in many instances the sending and receiving systems will work in combination to resolve the error. Error handlings should only be sent to the sending system.

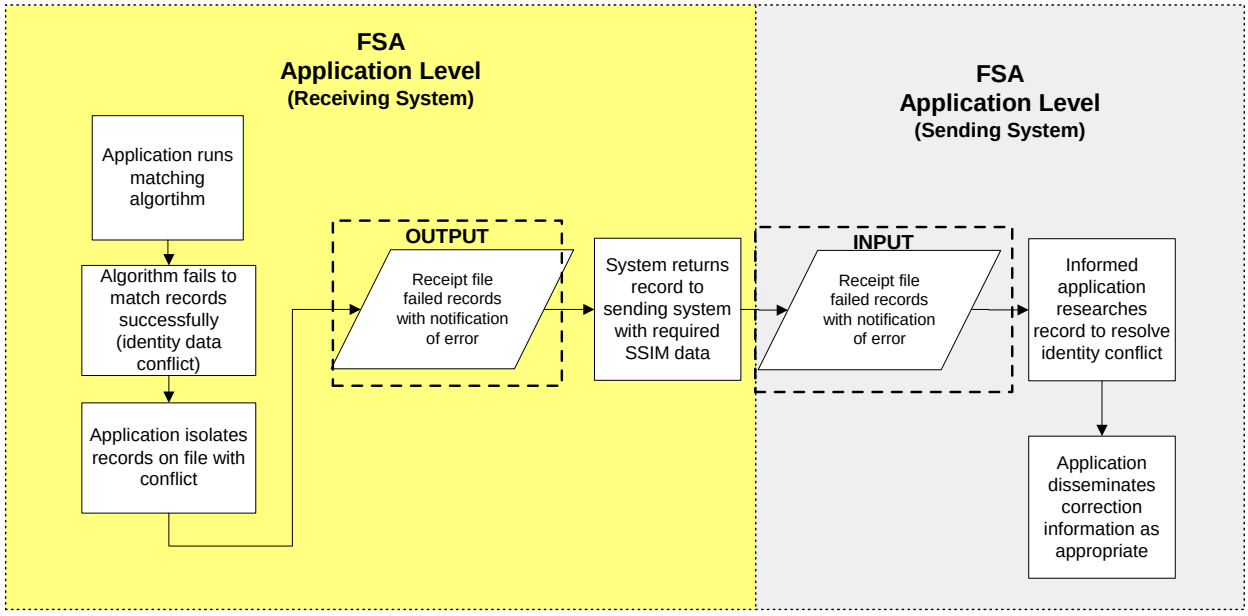


Figure 3.2

In Stage One, an escalation path needs to be determined for conflicting resolutions between sending and receiving systems. Resources should be dedicated at the system level to resolve errors. Due to the change SSIM requires in current processing, SSIM is expected to identify a large number of identity errors that went undetected with regular processing. The following information was recommended for inclusion on the error record by the working session teams:

- Incoming SSIM fields (SSN, First Name, Last Name, DOB)
- Receiving system conflicting information
- Pseudo Flag
- Posted Date
- Source of information

- Potentially SSA Match Flag and DOB Plug Date Flag[1]

3.5.4.2 Process Guidelines: Change Processing

The SSIM high level design defined the standards required to legitimize a change to an applicant's or borrower's identifying information (SSN, Last Name, First Name, and Date of Birth). All validated SSN, Name, and DOB changes should be sent to all systems forward and backwards in the lifecycle.

The centralized router, contained in the EAI layer, will determine the type of identifier change, and the necessary recipients of that change.

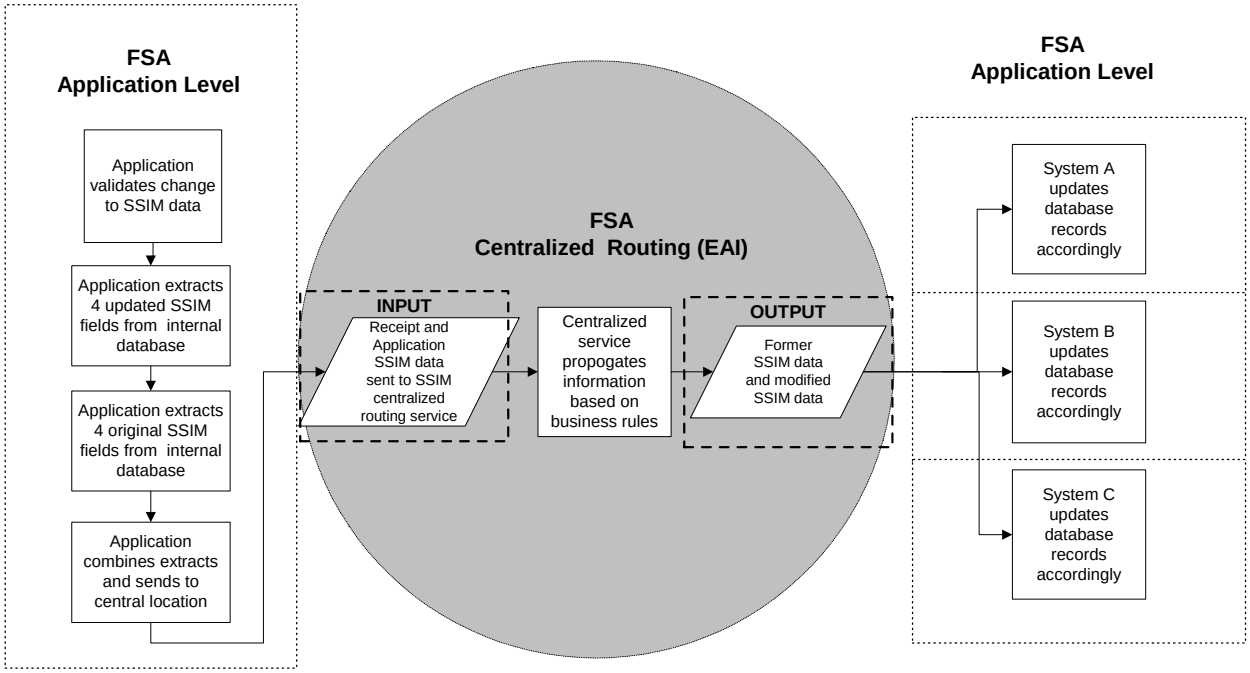


Figure 3.3

All open or active status records should be updated. Individual systems must determine how to handle closed, archived, and record not found updates. A record may not be found if the system is forward in the lifecycle or has been archived backwards in the lifecycle. The SSIM team recommends that each system define its own process in these instances.

The following information was recommended for inclusion on the change record by the working session teams:

- Incoming SSIM fields (SSN, First Name, Last Name, DOB)

[1] At several points in the SSIM workings sessions, system representatives expressed interest in revisiting the specific terminology and flag values to be used in the error handling and correction processing. Consensus will be required on such naming in the detailed requirements for SSIM.

- Correction information
- Pseudo Flag
- Posted Date
- Source of information
- Potentially: SSA Match Flag 4 and DOB Plug Date Flag[1]

3.6 SSIM Stage Two

3.6.1 Matching Algorithm Logic

After implementation of SSIM Stage One, the business owners will assess the value of adding centralized logic as a service for running the matching algorithm against a potential central data store and the Data Strategy team will include SSIM in the overall Data Strategy vision. In a future state of data strategy with consolidated data sources, SSIM will be extremely beneficial in synching data coming into FSA from external sources.

3.6.2 Social Security Matches

Once the SSIM solution has stabilized its centralized processing of errors and changes, the SSIM team will consider the development of a centralized SSA Match process if necessary. This would save the separate FSA systems the development cost to complete the same technical process by consolidating its records for SSA match in a single place.

Until implementation of Stage Two, the SSA Match processing will be maintained at the CPS and PIN processing points.

3.7 Process Changes

The following process changes are recommended for each FSA system, regardless of their inclusion in the SSIM Stage One or Stage Two solutions. The SSIM team has identified these processes as relatively low-impact modifications that provide the opportunity to pre-empt many identification errors.

3.7.1 Pre-Screening

Upon receipt of a FAFSA application, the CPS system sends its applicant records to NSLDS for a pre-screening check to determine eligibility. SSIM recommends using this pre-screening check to identify potential identity conflicts (e.g., duplicate use of SSNs). This would require NSLDS supplying additional information in response to CPS' inquiry, as well as the systems working together to resolve the identity conflict.

Using this pre-screening could prevent subsequent, more serious identity conflicts between a borrower's new loan being confused or associated with another borrower's existing loans.

[1] At several points in the SSIM workings sessions, system representatives expressed interest in revisiting the specific terminology and flag values to be used in the error handling and correction processing. Consensus will be required on such naming in the detailed requirements for SSIM.

3.7.2 Pacific Islanders

Because Pacific Islanders' identifiers cannot be linked across cycle years, SSIM recommends that FSA encourage Pacific Islanders to use the same identifier. This may be accomplished by adding verbiage to the FAFSA with specific instructions as well as giving such guidance to schools.

Such guidance could allow a consistent linking of pseudo-SSNs that does not currently exits. It also allows FSA a more complete view of the Pacific Islander as a customer throughout multiple award years and phases in the lifecycle.

3.7.3 Single Name Values

NSLDS is the only FSA system that requires the use of "NFN, NLN" for singly-named individuals. During recent SSIM sessions, other FSA systems concluded the inclusion of "plug data" to be detrimental to data integrity. Therefore, SSIM recommends that NSLDS analyze the ability to institute null values instead of "NFN, NLN" going forward.

4 Scope and Impacts

4.1 Scope

Within the scope of SSIM Stage One, the system representatives have identified the following system impacts. Impacts of SSIM Stage Two will be formulated once the overall FSA vision becomes defined.

4.2 Impacts to FSA Systems

4.2.1 Potential Impacts to Interfaces

The interfaces affected by SSIM Stage One depend on the systems included in SSIM Stage One. Specific FSA data exchanges have been highlighted below:

- Entrance of FAFSA applications through the web to CPS
- Entrance of paper FAFSAs to CPS
- Sending pre-screening records from CPS to NSLDS
- Sending aid awards from schools to COD

In addition to these changes, it is possible that NSLDS acceptance of any new loan or grant information could be affected, if the current processing with the existing matching algorithm requires modification.

4.2.2 Potential Impacts to System Architecture

The SSIM team has identified the following high level requirements that will impact at least some of FSA's systems. These high level requirements will also apply to SSIM Stage Two, regardless of a system's inclusion in SSIM Stage One.

- Systems must be unique on Current SSN (or be able to handle errors based on duplicate SSNs).
- Systems will use the defined SSIM matching algorithm.
- Systems and Trading Partners will have required fields for SSN, First Name, Last Name, and DOB (can be valid DOB Plug Date if true DOB is not available.)
- First Name field must have space for at least 4 characters.
- Last Name field must have space for at least 7 characters.
- Systems will be required to track change history (minimum last two updates.)
- Systems must be able to disassociate history records when appropriate (protection acts, etc.)
- Systems will be required to use standard Pseudo SSNs and DOB Plug Dates (where applicable) going forward.
    - Pseudo SSN = range from SSA
    - DOB Plug Date = 19000101

- Systems will be required to populate/track flags for Pseudo SSNs and potentially SSA Match Flag 4 and DOB Plug Dates.
- Systems will agree to consistently use a null value for singly named people OR NFN for No First Name and NLN for No Last Name.
- Systems will be EAI enabled for Error Handling and Change Processing.

4.3 Impacts to External FSA Partners

4.3.1 Potential Impacts to Students

Student and borrower customers will experience improved customer service when their identifier changes are propagated throughout the lifecycle. This should reduce or eliminate many of the identification conflicts between FSA systems that can impede the aid process.

4.3.2 Potential Impacts to Schools

Because the matching algorithm relies heavily on the first name data, first name will now be a required field for schools' submissions to COD. The implementation of SSIM would need to ensure that enough time is allocated for schools to make system changes to support the first name being a required field.

Additionally, FSA should stress to schools the importance of consistently updating both awards being sent to COD as well as ISIRs being sent to CPS. If a student's identifying information changes, the schools will prevent identification discrepancies by providing up-to-date information to both systems.

4.3.3 Potential Impacts to the FFEL Community

Due to privacy concerns, there may be limits on the nature and volume of data that can be volunteered about a borrower to organizations outside of FSA. In this way, the correction processing and error handling may be modified in communications between FSA and members of the FFEL community.

5 FSA and Integration Partner Dependencies

5.1 Common Services for Borrowers (CSB)

The SSIM Core Team agrees that the algorithm should not be implemented on the existing legacy systems affected by the CSB initiative (DLSS, DMCS, and DLCS) in anticipation of such a large-scale system change. The CSB initiative, however, does not have a defined timeline for implementation and use of SSIM.

As CSB proceeds through the development cycle, SSIM should remain an integral part of the requirements and design development related to borrower identification.

One of the primary areas of inappropriate merging and splitting of records occurs in the data transfer between COD and DLSS. DLSS identifier problems (the merging of accounts based solely on SSNs) will be addressed through CSB.

5.2 PIN Re-engineering

PIN is not planning to implement SSIM until reengineering due to major database restructuring that is required. The timeline for this PIN reengineering is not yet defined, but also not anticipated in the next calendar year. In the meantime, the current identification problems that arise involving PIN will not be addressed by SSIM.

5.3 CPS Multi-Year Data Base

The CPS is developing a multi-year database for the next cycle year. A large portion of this development must be devoted to CPS's uniqueness on an applicant's Current SSN. Business owners express concern about delaying processing for borrowers who are shown to have SSNs in duplicate with other applicants.

Within the timeframe of SSIM Stage Two (FY 2005), the FSA will conduct a "re-compete" for the current CPS contract. The requirements and needs of SSIM must be fully conveyed to the recipient of the new contract.

5.4 COD

The SSIM team recommends that COD maintain its current matching process with the AAR file, which includes matching on identifying data and a specific ISIR transaction. COD should, however, match incoming aid award from schools using the matching algorithm rules defined by SSIM.

6 Policy and Statute Changes

6.1 External Data Exchange

In the course of internally exchanging information needed for the SSIM matching algorithm, as well as correction and error processing, no new data elements will be required outside of what is traded in the current state. FSA must consult the Department of Education Office of General Counsel to review the transmission and exchange of SSIM information to external entities (e.g., lenders, schools, guarantors, services, and credit agencies). FSA must meet with OGC to determine the appropriate transmission guidelines for release of SSIM data to external parties.

6.2 PLUS Borrowers

FSA continues to examine the possibility of requiring a common application for PLUS borrowers that will be used to verify identities with SSA.

6.3 Additional SSA Matches

There are no existing policy concerns around completing an SSA match with students or borrowers at any point in the FSA lifecycle.

Business owners within FSA continue to express concern regarding SSA's willingness to use the SSA match interface for holders of defaulted loans. Meetings with FSA policy experts, however, have not yielded any legal reason why FSA may not employ such a match.

6.4 Witness and Child Protection with Student History

All systems will need to be able to delete history if necessary for individuals who enter the witness protection programs. Within FSA systems, witness protection permits a complete disassociation of history. A student re-enters the lifecycle as a new identity.

In a child protection program, the student's identity is associated via SSN (if the SSN remains the same and the name changes). If the student is issued a second SSN for protective purposes, schools and members of the aid community have different reactions about association of the records. PDD is seeking to standardize guidelines that will be given to schools for their association of student records for students in child or witness protection programs.

6.5 The U.S. PATRIOT Act

FSA does not plan to run any additional matches relating to the U.S. PATRIOT Act. Their current interfaces with other government agencies satisfy their requirements

Appendix A: SSIM Working Session 7/31/03

Appendix B: SSIM Working Session 8/6/03

Appendix C: SSIM Stage One High-Level Requirements

The following High Level Requirements were formulated and refined in the SSIM working sessions. These requirements are also discussed in prior sections of this document.

Algorithm -

- Systems must be unique on SSN.
- Systems will use a consistent matching algorithm.
- Systems and Trading Partners will have required fields for SSN, First Name, Last Name, and DOB (can be valid DOB Plug Date if true DOB is not available.)
- First Name field must have space for at least 4 characters.
- Last Name field must have space for at least 7 characters.
- Systems will be required to track change history (minimum last two updates.)
- Systems must be able to disassociate history records when appropriate (protection acts, etc.)
- Systems will be required to use standard Pseudo SSNs and DOB Plug Dates (where applicable) going forward.
    - Pseudo SSN = range from SSA
    - DOB Plug Date = 19000101
- Systems will be required to populate/track flags for Pseudo SSNs and potentially SSA Match Flag 4 and DOB Plug Dates.
- Systems will use NFN for No First Name and NLN for No Last Name (being revisited)
- Systems will be EAI enabled for Error Handling and Change Processing.

Error Handling -

- Sending systems will be primarily responsible for resolving SSIM errors. Although in many instances the sending and receiving systems will work in combination to resolve the error. In instances where the error cannot be resolved between systems or there are conflicting resolutions, a centralized team may need to be consulted.
- Error notifications will only be sent to the sending system.
- In Stage 1, there is not a need for a centralized error handling team. Resources should be dedicated at the system level to resolve errors. *Note: SSIM is expected to produce an initial spike in errors due to resolving current identity conflicts.*
- The following information will be included on the error record (being revisited):
    - Incoming SSIM fields (SSN, First Name, Last Name, DOB)
    - Receiving system conflicting information
    - Pseudo Flag
    - Posted Date
    - Source of information
    - Potentially SSA Match Flag and DOB Plug Date Flag

Change Processing -

- All validated SSN, Name, and DOB changes will be sent to all systems forward and backwards in the lifecycle.
- All open or active status records will be updated with SSN and Name (DOB where applicable). Systems will need to determine how to handle closed, archived, and record not found updates. *Note: A record may not be found if the system is forward in the lifecycle or has been archived backwards in the lifecycle.*
- The following information will be included on the change record:
    - Incoming SSIM fields (SSN, First Name, Last Name, DOB)
    - Correction information
    - Pseudo Flag
    - Effective Date
    - Source of information
    - Potentially: SSA Match Flag 4 and DOB Plug Date Flag
- Standards for verifying SSN changes include:
    - Receipt of a successful SSA match (match flag of 4)
    - Submission of a valid Social Security Card or Drivers License that displays the SSN
    - Change request received from a data provider who requires similar credentials
- Standards for verifying name and date of birth changes include:
    - Receipt of a successful SSA match (match flag of 4)
    - In the instance of a last name change, proof of a marriage license, divorce decree, or legal name change document
    - Change request received from a data provider who requires similar credentials
    - Dates of Birth corrections do not require additional documentation

Appendix D: SSIM Matching Algorithm

The following chart is the recommended SSIM algorithm. A match for all columns in a single row is considered a successful match between records.

Comparison	SSN	First Name	Date of Birth	Last Name
1st SSN, First Name, and DOB	Current SSNs must match exactly on all 9 digits of the SSN on the student record.	3 of the first 4 significant characters of the first name must match in sequence* (in current or history), *or* alias matches exactly. Names of 3 characters or less must match exactly.	Year matches exactly; *or* Year matches plus or minus one, with month matching exactly; *or* Year matches plus or minus ten, with month and day matching exactly; *or* Date is an acceptable plug date	***N/A***
2nd Transposed First and Last Names	Current SSNs must match exactly on all 9 digits of the SSN on the student record.	Three of the first four significant characters of *last name on incoming record* must match in sequence (in current or history), the first name on the receiving record. *or* alias matches exactly. Names of 3 characters or less must match exactly.	Year matches exactly; *or* Year matches plus or minus one, with month matching exactly; *or* Year matches plus or minus ten, with month and day matching exactly; *or* Date is an acceptable plug date	***N/A***
3rd First Initial Provided for First Name w/ exact DOB	Current SSNs must match exactly on all 9 digits of the SSN on the student record.	First name begins with same letter as first initial (a name that is an initial only or an initial followed by a period, not a comma).	*Day, Month, and Year Match Exactly*	***N/A***
4th First Initial Provided for one of the First Names w/ check on Last Name	Current SSNs must match exactly on all 9 digits of the SSN on the student record.	First character of first name matches first character of first name or first initial (current or history).	Year matches exactly; *or* Year matches plus or minus one, with month matching exactly; *or* Year matches plus or minus ten, with month and day matching exactly; *or* Date is an acceptable plug date	Five of first seven significant characters of last name match in sequence (current or history). If fewer than five characters, all characters must match.